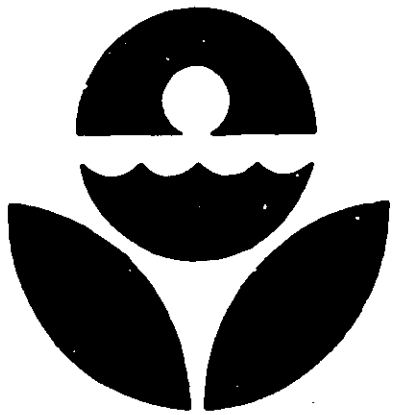

EPA

MRID NUMBER

40816.04

STUDY TITLE

Evaluation of Potential Insecticides
for Controlling German Cockroaches, 1986

DATA REQUIREMENT

Guideline 158.60

AUTHOR

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STUDY COMPLETED ON:

1986

PERFORMING INSTITUTION

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PRODUCT ID

WRL-310EF3

STATEMENT OF NO CONFIDENTIALITY CLAIMS

No claim of confidentiality is made for any information contained in this study on the basis of its falling within the scope of FIFRA 10(d)(1)(A), (B) or (C).

Company: Whitmire Research Laboratories, Inc.

Company Agent: Michael G. Sarli Date: November 9, 1988

Title: Manager, Regulatory Affairs

Signature

Insecticide & Acaricide Tests: 1988

Volume 13

Published by the
Entomological Society of America

SINGLE FAMILY HOUSE
German cockroach; *Blattella germanica* (L.)

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(12J)

EVALUATION OF POTENTIAL INSECTICIDES FOR CONTROLLING GERMAN COCKROACHES, 1986: Field tests were conducted to determine the relative effectiveness of self-pressurized sprays containing 1 of 2 concentrations of cyfluthrin or 1 concentration of an avermectins bait or dust-type baits of avermectins, boric acid, or fenoxycarb. MaxForce™ (hydramethylnon) bait and a self-pressurized spray of 0.5% chlorpyrifos, both labeled for cockroach control, were used as standards. Dry baits were applied with a Getz™ or Controlbulb™ duster. MaxForce was used as sold to homeowners; the self-pressurized formulations were applied as supplied by Whitmire Research Laboratories, St. Louis, Mo. All formulations were applied to cracks and crevices, except the MaxForce bait stations, which were attached to kitchen surfaces as directed by the label. Single-family houses located in Sampson County, N.C., served as test sites. Only houses with a minimum of 25 cockroaches sighted in a preliminary survey of the kitchen were used. Visual counts in the kitchen before the initial application and at specified intervals afterward determined the percent reduction in cockroach populations. The amount of insecticide for kitchen applications was recorded. No additional MaxForce stations were placed in the MaxForce test houses after the initial application. Other rooms in all test houses were treated, but cockroach numbers and amount of insecticide applied were not measured. Each formulation was replicated 5 times. Analyses were calculated on percent reduction of cockroaches (pre- versus postcounts for a house) using a general linear models procedure and the Goodnight [1982] Waller-Duncan K-ratio *t* test for variables. The combined wall and floor surfaces in the kitchens ranged from 35 to 90 m^2 with a mean of 55 m^2. The active ingredient applied in the initial application and during reapplications ranged from 0.007 to 4.2 g and from 0.0 to 1.4 g, respectively, for 50 m^2 of kitchen floor and wall surfaces. Smaller quantities of insecticide were used for the reapplications because partial cockroach control had resulted in most of the dwellings.

All treatments, except that involving the fenoxycarb bait, which is an insect growth regulator, gave significant ($P < 0.01$) control at 2 wk. Several adult cockroaches in the fenoxycarb-treated houses had curled wings, indicating that the growth regulator was being incorporated into the population and that cockroach population reduction should occur within several months. However, due to the large populations and dissatisfaction of the families, a standard cockroach control insecticide was applied at 2 wk. These houses were discontinued. At 4 wk, cockroach populations in the kitchens treated with the 1.0% boric acid bait were reduced an average of 32%, with several houses still containing large populations. Therefore, all houses treated with boric acid were discontinued and treated with a standard cockroach control insecticide. All other formulations gave significant ($P < 0.01$) control at 4 and 8 wk. Upon completion of the test, the MaxForce bait containers were opened. Many of the containers contained no bait, even though label recommendations as to the number to be placed per unit area were followed. The lack of bait in containers could have influenced the low percentage of cockroach reduction in several kitchens and suggests that additional containers may need to be placed in rooms with large cockroach populations.

Treatment and concentration (%)		Avg. pretreatment count	Avg. % reduction[a]		
			2 wk	4 wk	8 wk
Avermectins dry bait	0.05	226	99a	98a	99a
Avermectins self-pressurized bait	0.0025	102	78b	95ab	97a
Cyfluthrin self-pressurized spray	0.1	502	85ab	90ab	86a
Cyfluthrin self-pressurized spray	0.2	261	91ab	97ab	91a
Boric acid dry bait	1.0	129	46c	32c	—
Fenoxycarb dry bait	2.0	330	15d	—	—
MaxForce bait	1.65	108	75b	84b	85a
Chlorpyrifos self-pressurized spray	0.5	485	89ab	96ab	95a

[a]Numbers within the same time frame followed by different letters were significantly different ($P < 0.01$, Waller-Duncan K-ratio *t* test).

END